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SOME OBSERVATIONS ON *PACHLIOPTA POLYDORUS* (LINNAEUS) (LEPIDOPTERA: PAPILIONIDAE) FROM THE SOLOMON ISLANDS

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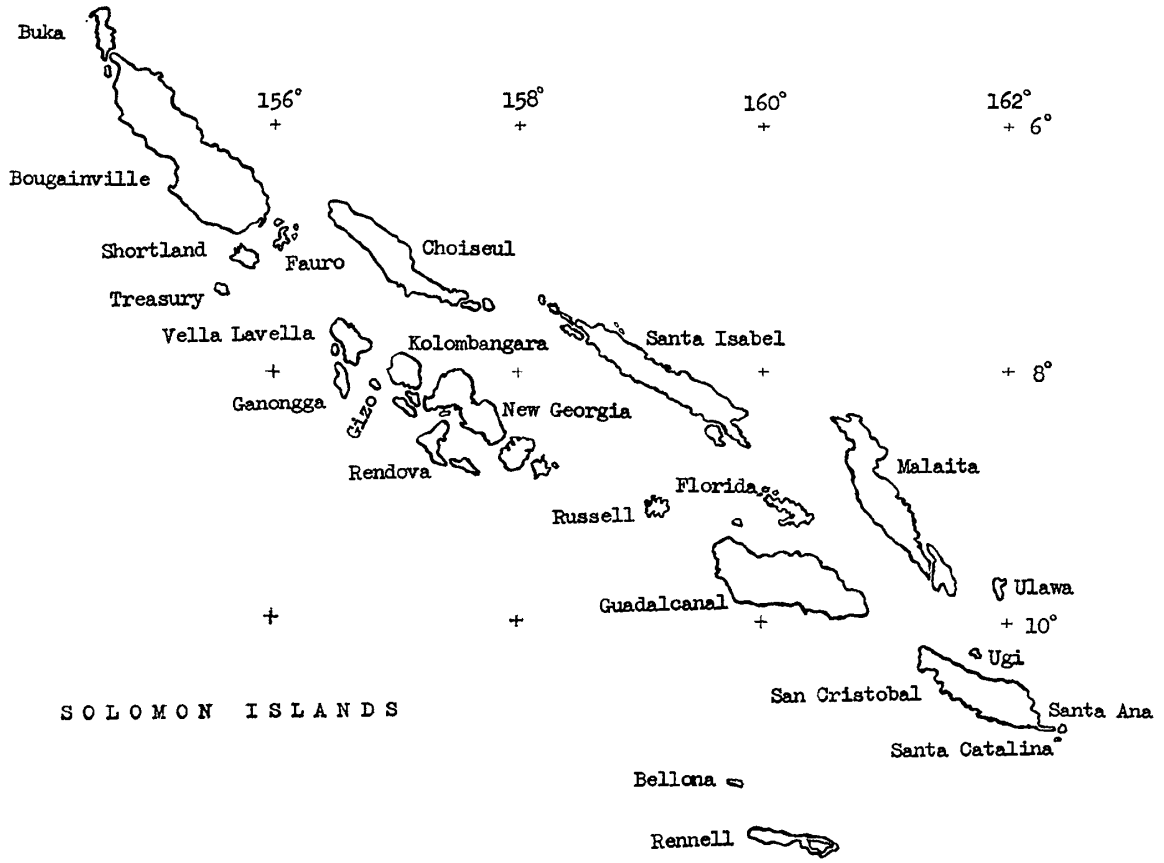
Revising *Pachliopta polydorus* (L.) in the British Museum (Natural History), and having received some material recently from the Solomon Islands, we have found that in those islands two and most probably three subspecies of this species occur. Due to the lack of material of ssp. *ulawaensis* Joicey & Talbot (1918: 272) from Ulawa, it is difficult to assess with accuracy the true status of the two specimens available, though it seems likely that *ulawaensis* is a genuine subspecies as the female type and one male differ considerably from material collected on neighbouring islands, and more nearly resemble specimens from the opposite end of the archipelago.



Mathew (1887: 48—49) described *Papilio polydaemon* from Ugi Island and *Papilio polypemon* from Treasury Island but Rothschild (1895: 243), Jordan (1908: 37) and other authors have treated the name *polypemon* as a mere aberration or synonym of *polydaemon*. D'Abrera (1971: 81) also recognizes the latter as being the only subspecies of *polydorus* occuring in the Solomon Islands omitting any reference to *ulawaensis*. Based on the extensive material in BMNH we have come to the conclusion that the name *polydaemon* Mathew should be applied only to the subspecies inhabiting the islands of Ugi and San Cristobal and that the name *polypemon* Mathew should apply

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to the insect that occurs on most of the other islands apart from Ulawa which is inhabited by ssp. *ulawaensis* Joicey & Talbot. Unfortunately no specimens have been available to the authors for study from the island of Malaita and it would be of great interest to know if specimens from there agree with those from Ulawa (*ulawaensis*) or Florida (*polypemon*) or San Cristobal (*polydaemon*) or belong to a taxon distinct from the aforementioned subspecies*.

In the series of *polydaemon* in BMNH there are two specimens, a male and a female from Ugi ex. the Mathew collection, the female being labelled as the type. Though Mathew prefixed his description with a male sign there seems no doubt that his description refers to the female specimen as it has the fore wing measurement (from base to apex x2) mentioned by Mathew. He also based the name *polypemon* on a female specimen as did Joicey & Talbot with ssp. *ulawaensis*. Thus the three taxa inhabiting the Solomons are all based on the female sex and the following descriptions are those of the appropriate males.

Pachliopta polydorus polypemon (Mathew) (Figs. 1, 2, 3, 4.)

Papilio polypemon Mathew, 1887: 49

Male. Palpi, head, thorax and dorsum of abdomen except for the terminal segment black. The abdominal segments have the hind margin crimson beginning at the second as a lateral spot and increasing to the terminal segment which is entirely crimson. Fore wing length 53 mm. *Upperside.* Fore wing, ground colour blackish brown with greyish brown streaks in upper half of discoidal cell and along the darkened veins which fade towards the submargin. Hind wing, ground colour as fore wing, with a series of five closely grouped, prominent white spots broadly separated by the blackish brown veins situated at mid space 1c and based of spaces 2—5. The latter are adjacent to a similar one in the distal portion of the discoidal cell, the whole group forming a rather rounded white area in the disc of the wing. A series of six crimson broadly crescentic lunules heavily suffused with ground colour and becoming very indistinct towards the apex is situated in the submarginal area. *Underside.* Fore wing as upperside but greyish stripes in post discal area more prominent. Hind wing, as upperside but the markings more prominent. The white spot nearest the hind margin in 1c is extended distally as a small crimson projection. The series of six prominent crimson submarginal spots are unsullied by dark scaling but tend to fade to whitish towards the costal margin. Neallotype male. Treasury Is. 5—10. viii. 1901 (Meek)/Rothschild Bequest B.M. 1939—1/B.M. Type No. Rh. 17352. *Pachliopta polydorus polypemom* Mathew ♂ Neallotype. The type female is labelled:-Treasury I., Solomon Is. G.F. Mathew/♀/Treasury Is., 1688/1688 *Papilio polypemon* Math. Salomon Is. Sep. 83 Type/*Papilio polypemon* Mathew, Godman-Salvin Coll. 1918—4/B.M. Type No. Rh. 10877 *Papilio polypemon* Math. ♀.

This subspecies is very variable in the amount of white in the disc of the upperside of the hind wing, particularly the spot in the discoidal cell which may be almost obsolescent or divided into two by dark scaling along the median vein.

Distribution. There are specimens in BMNH from Bougainville, Fauro, Alu, Shortland, Treasury, Vella Lavella, Gizo, Ganongga (Ranonga), Rendova, Choiseul, Isabel, Florida, and Guadalcanal.

Pachliopta polydorus polydaemon (Mathew) (Figs. 5, 6, 7, 8.)

Papilio polydaemon Mathew, 1887: 48

Male. Fore wing length 49 mm. *Upperside.* Similar to *polypemon* but white markings of hind wings more prominent as they are larger and the veins separating them are narrower. The white spot in the distal end of the cell reaches or extends based beyond the base of vein 6. The indistinct crimson submarginal spots are almost obscured towards the apex. *Underside.* As in *polypemon* but white spots of hind wing disc larger as on upperside with an extra ill-defined white spot situated based in space 6. This extra spot is present in the two males available (BMNH) but not in the females. The six crimson submarginal spots are considerably larger than those of *polypemon* and extend to much nearer the margin. Neallotype male. Ugi I., Solomon Is. G.F. Mathew/♀/332/*Papilio polydaemon* Mathew, Godman-Salvin Coll. 1918—4./B.M. Type No. Rh. 17353 *Pachliopta polydorus polydaemon* Math. ♂. The type female is labelled: -Ugi I., Solomon Is. G.F. Mathew/♀/332 *Papilio polydaemon* Math. Solomon Is. Oct. 1882 Type/332/*Papilio polydaemon* Mathew Godman-Salvin Coll. 1918—4/B.M. Type No. Rh.

* Since writing the above a male specimen from Malaita has become available for study and proves to belong to ssp. *polypemon* (Mathew).

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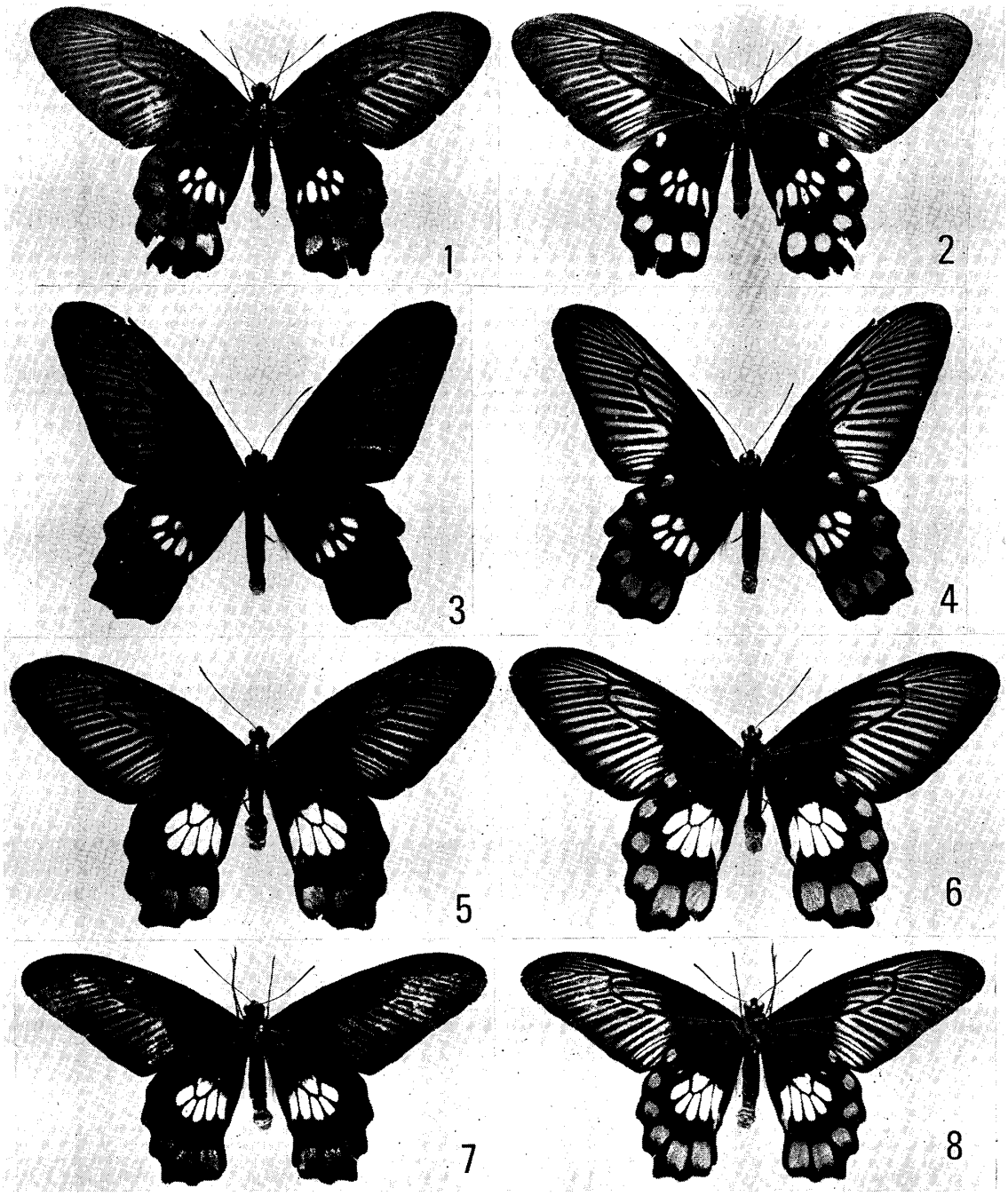

Figs. 1—8. *Pachliopta polydorus* subspecies, upper- and underside: (1, 2) *P. p. polypemon* (Mathew) ♀, holotype; (3, 4) ditto ♂, neallotype; (5, 6) *P. p. polydaemon* (Mathew) ♀, holotype; (7,8) ditto ♂, neallotype.

10876 Papilio polydaemon Math. ♀.

Distribution. Confined to the islands of San Cristobal and Ugi.

Pachliopta polydorus ulawaensis (Joicey & Talbot) (Figs. 9, 10, 11, 12.)

Papilio polydorus ulawaensis Joicey & Talbot, 1917: 272

Male. Fore wing length 47 mm. *Upperside.* Fore wing, coloration and shape similar to *polypemon.* Hind wing, considerably darker than that of *polypemon,* the discal white spots being greatly reduced both in size and

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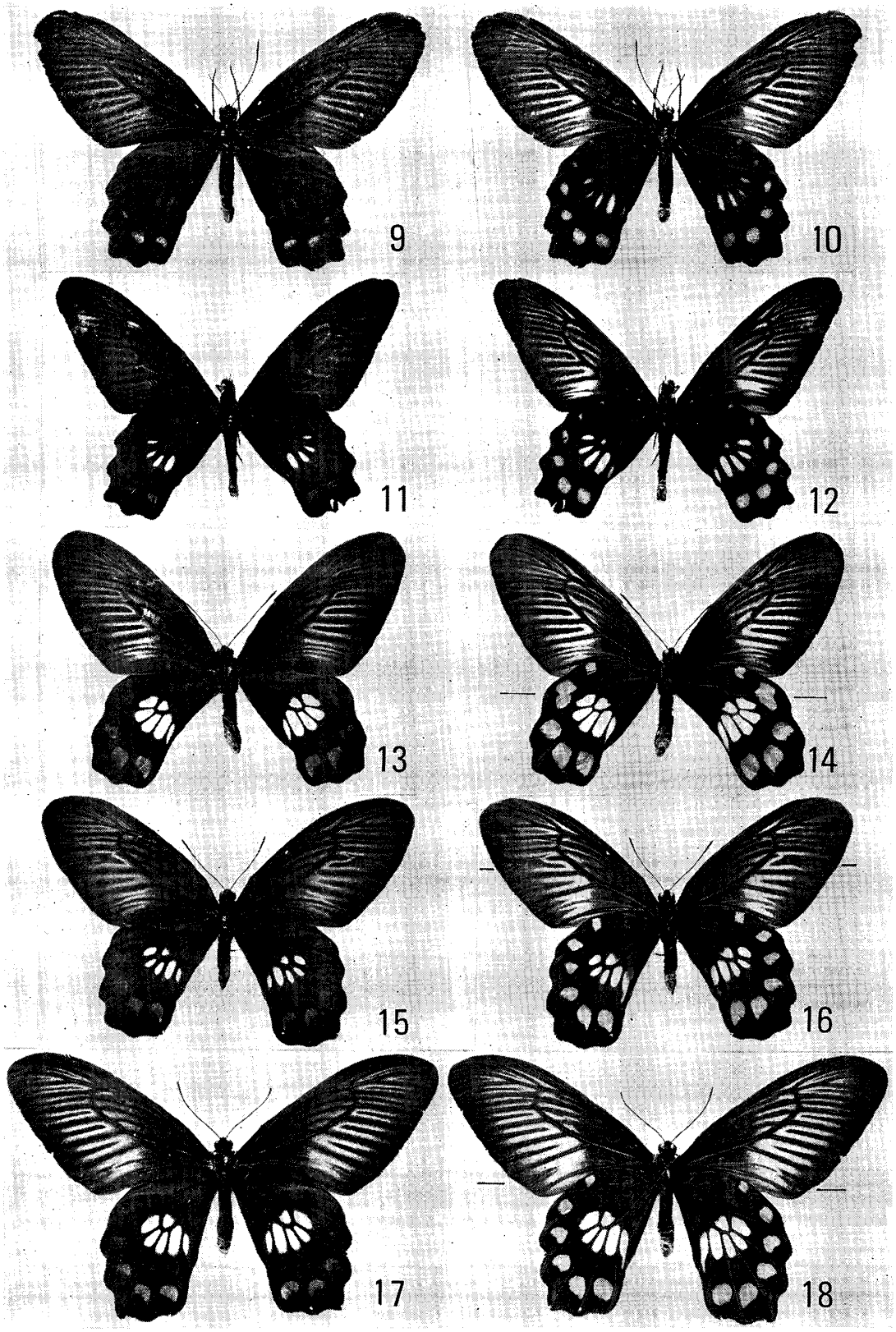

Figs. 9—18. *Pachliopta polypemon* subspecies, upper- and underside: (9, 10) *P. p. ulawaensis* (Joicey & Talbot) ♀, holotype; (11, 12) ditto ♂, neallotype; (13, 14) *P. p. polypemon* (Mathew) ♀, Choiseul, with vein 6 of hind wings reduced with consequential coalescence of red submarginal spots in spaces 5 & 6 on underside. (Compare with fig. 2); (15, 16) *P. p. polypemon* (Mathew) ♀, Buin, Bougainville, with aberrant vein 4 of both fore wings. (Compare with figs. 1, 2); (17, 18) *P. p. polypemon* (Mathew) ♀, Aola, Guadalcanal, with aberrant submedian fold of both fore wings. (Compare with figs. 1, 2).

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number. The discocellular spot is obsolete and those surrounding the cell are small, elongate and confined to the bases of spaces 2—5, that in 2 being the largest. The reddish submarginal spots are almost obliterated. *Underside*. Fore wing as in *polypemon*. Hind wing as on upperside but with a very small discocellular spot and an elongate spot with no reddish projection distad in mid space 1c. The reddish submarginal spots are smaller and paler than those of *polypemon*.

Neallotype male. B. Solomon Is. Ulawa Island, Hada x. 1963 W.R.M. Low. B.M. 1964—101/B.M. Type No. Rhop. 17354 *Pachliopta polydorus ulawaensis* Joicey & Talbot ♂ neallotype.

The female holotype is labelled:-Ulawa/Ex. Grose-Smith 1910/*Papilio polydorus ulawaensis* Joiscey & Talbot Type ♀ (H.T.)/67 *Papilio Polydorus ulawensis* (sic) ♀, Ulawa, Joicey & Talbot/Presented by J. J. Joicey Esq. Brit. Mus. 1931—291/B.M. Type No. Rhop. 17355 *Papilio polydorus ulawaensis* Joicey & Talblot ♀ holotype. Distribution. Apparently confined to Ulawa Island.

Peroneural abnormalities in *Pachliopta polydorus* (Linnaeus).

It is of interest that the specimens mentioned by Jordan in Seitz (1908: 37) as having the second and third submarginal spots on the underside of the hind wing conjoined have a peroneural defect and have the terminal part of the vein which normaly separates these spots absent. On examining the series in BMNH of *polydorus* four specimens with this defect were found in ssp. *polypemon*, one in ssp. *dampierensis* Hagen from Dampier Is. together with two in *utuaensis* Ribbe from Duke of York Is. and New Britain, one of which is also mentioned by Jordan. Four of the above mentioned specimens have this venational defect on the left hand side, one on the right hand side and two on both (figs. 13,14) but all have the same vein affected and all are females. The specimens are certainly, unrelated as they are from different islands, the *polypemon* coming from Choiseul, Rendova and Shortland. Two female specimens of *polydaemon* from San Cristobal in the Racheli collection have this same defect on both hind wings. The fact that this defect is confined to the female sex, to the same vein in all specimens would seem to indicate that it may be of some significance rather than an extraordinary coincidence.

There are two other specimens, also females, of ssp. *polypemon* which have a defective venation on the fore wings. In one from Buin, Bougainville (figs. 15,16), vein 4 of the left wing is reduced to a small portion only 1 mm. in length and the two adjacent interneural folds are anastomosed. The corresponding vein on the right side has only the basal portion 5 mm. in length and a small portion 2.5 mm. in length at the margin, with the adjacent interneural folds anastomosed beyond the basal portion and divided again before reaching the marginal section of vein. The other specimen from Aola, Guadalcanal (figs. 17, 18), has the outer quarter of the submedian fold missing on the left fore wing and about the outer half of the corresponding fold on the right wing. The dark markings which are normally either side of the fold are, in this specimen, anastomosed in the submarginal area.

Another specimen, this time of ssp. *asinius* Fruhstorfer, from Waigeu, New Guinea, has the outer third of the submedian fold of the right fore wing missing.

There are three other specimens in BMNH which have abnormal venation affecting the submedian fold and vein 2 immediately above it. A female specimen of ssp. *septentrionalis* Rothschild, from Batjan, has on the left fore wing a short cross vein from vein 2 running almost parallel with the median vein of the cell to the middle of the submedian fold. Both vein and fold are bent slightly together at the junctions of the cross vein. A female specimen of ssp. *asinius* Fruhstorfer from New Guinea and also one ssp. *naissus* Fruhstorfer from Goodenough Is. have a similar abnormality each in the same position of the vein and both on the right fore wing.

All the above mentioned abnormalities are quite conspicuous except for the last two specimens due to the distortion of markings in the affected areas.

The only male specimen of *polydorus* found in the BMNH series of 492 males and 521 females with an abnormal venation is one of ssp. *plagiatus* Rothschild from Erima, New Guinea which has the submedian fold and vein 3 of the right fore wing completely missing. The affected wing is distorted in breadth, being considerably narrower than normal and vein 4 is nearer to vein 5 than vein 5 is to vein 6.

Acknowledgements

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Summary

The status of the subspecies of *Pachliopta polydorus* (L.) inhabiting the Solomon Islands are reviewed. The name *polydaemon* Mathew should be restricted to specimens from the islands of San Cristobal and Ugi and the name *polypemon* Mathew should be applied to specimens from elsewhere within the archipelago, with the exception of the island of Ulawa. Neallotypes of the three taxa involved have been described and details of some examples of venational defects within the species are given.

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